CLAIMS

1. A perovskite-type composite oxide represented by the following general formula (1):

$$A_x B_{(1-y)} P d_y O_{3+\delta}$$
 (1)

wherein A represents at least one element selected from rare earth elements and alkaline earth metals; B represents at least one element selected from transition elements (excluding rare earth elements, and Pd), Al and Si; x represents an atomic ratio satisfying the following condition: 1 < x; y represents an atomic ratio satisfying the following the following condition: $0 < y \le 0.5$; and δ represents an oxygen excess.

2. A perovskite-type composite oxide represented by the following general formula (2):

$$(A_aA'_bA''_c) (B_{1-(q+r)}B'_qPd_r) O_{3+\delta}$$
 (2)

wherein A represents at least one element selected from La, Nd and Y; A' represents at least one element selected from rare earth elements and alkaline earth metals (excluding La, Nd, Y, Ce, Pr and Tb); A" represents at least one element selected from Ce, Pr and Tb; B represents at least one element selected from Mn, Fe, Co and Al; B' represents at least one element selected from transition elements (excluding rare earth elements, and Mn, Fe, Co, Al and Pd) and Si;

a represents an atomic ratio satisfying the following condition: $0.5 < a \le 1.3$; b represents an atomic ratio satisfying the following condition: $0 \le b < 0.5$; (a + b) represent atomic ratios satisfying the following condition: $1 < (a + b) \le 1.3$; c represents an atomic ratio satisfying the following condition: $0 \le c \le 0.2$; q represents an atomic ratio satisfying the following condition: $0 \le q < 0.5$; r represents an atomic ratio satisfying the following condition: $0 \le q < 0.5$; and $0 \le c \le 0.5$; and $0 \le 0.5$; a

- 3. The perovskite-type composite oxide according to claim 2, wherein at least one of b, c and q is 0 in the general formula (2).
- 4. A catalyst composition comprising the perovskitetype composite oxide according to any one of claims 1 to 3.
- 5. The catalyst composition according to claim 4, which is an exhaust gas purifying catalyst.
- 6. The catalyst composition according to claim 4, which is a coupling reaction catalyst for organic synthesis.
- 7. A method for producing a perovskite-type composite oxide, which comprises a step of formulating materials in accordance with each atomic ratio of a perovskite-type composite oxide represented by the following general formula (1):

 $A_x B_{(1-y)} \, P d_y O_{3+\delta} \eqno(1)$ wherein A represents at least one element selected from rare

earth elements and alkaline earth metals; B represents at least one element selected from transition elements (excluding rare earth elements, and Pd), Al and Si; x represents an atomic ratio satisfying the following condition: 1 < x; y represents an atomic ratio satisfying the following condition: $0 < y \le 0.5$; and δ represents an oxygen excess.